Five Considerations for Formulating an Implementation Science Research Question

Hosted by:

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Plan for Today

• Brief overview of implementation science
• Key considerations for research questions
• Recommended fundamental readings
• DCIS resources
Gaps between research and practice happen in every healthcare and public health setting.

- It is frequently cited that it takes an average of 17 years for evidence to change practice.
- Implementation science seeks to narrow this gap.
- How fast this gap can be narrowed is an empirical question.

**Definition of Implementation Science**

*Implementation science* is the study of methods to promote the adoption and integration of evidence-based practices, interventions, and policies into routine health care and public health settings to improve our impact on population health.


https://doi.org/10.1186/1748-5908-1-1
Focus of Implementation Science

**CONTEXTUAL FACTORS**

- Identify barriers and facilitators to implementation with a focus on context

**IMPLEMENTATION & SUSTAINMENT**

- Develop and test strategies to address barriers and engage mechanisms to implementation

**DE-IMPLEMENTATION**

- Reduce or eliminate what is ineffectve or potentially harmful
What Makes it a Science?

Implementation science has an explicit goal of developing generalizable knowledge that can be applied widely beyond the individual system and setting under study.

What methods work best to translate evidence into real world practice?
Five Considerations for Formulating an Implementation Research Question

Pursue questions that:

1. Remain unanswered
2. Are priorities for partners and communities
3. Start with the end in mind → what needs to be done
4. Are guided by a conceptual or theoretical framework
5. Advance knowledge of implementation

1. Pursue questions that remain unanswered

Is there a foundation of prior work to build upon?

➢ Conduct a literature search
  o Barriers and facilitators; strategies; settings; populations
➢ Search PubMed and implementation science journals:
  o Implementation Science
  o Implementation Science Communications
  o Implementation Research and Practice
➢ Search for funded projects in NIH Reporter: [https://reporter.nih.gov](https://reporter.nih.gov)
➢ Talk with colleagues and experts in the field familiar with the topic
1. What are barriers and facilitators to adoption of lung cancer screening?

**Barriers and facilitators to uptake of lung cancer screening: A mixed methods systematic review**

Yu-An Lin, Yu Ting Hong, Xiu Jing Lin, Jia Ling Lin, Hui Min Xiao, Fei Fei Huang

Affiliations + expand

PMID: 35963208 DOI: 10.1016/j.lungcan.2022.07.022


**Barriers and facilitators to lung cancer screening and follow-up**

Ethan Bernstein, Brett C Bade, Kathleen M Akgün, Michal G Rose, Hilary C Cain

Affiliations + expand

PMID: 35927099 DOI: 10.1053/j.seminoncol.2022.07.004

**Facilitators and Barriers to Implementation of Lung Cancer Screening: A Framework-Driven Systematic Review**

Ami E Sedani, Olivia C Davis, Shari C Clifton, Janis E Campbell, Ann F Chou

Affiliations + expand

PMID: 35993616 PMCID: PMC9664175 DOI: 10.1093/jnci/djac154

**Free PMC article**

**Questions to guide next steps:**

- Have studies been done in your context (e.g., rural)?
- Have studies been theoretically guided and modifiable targets identified?
- Do we know enough about barriers and facilitators to move on to studying strategies to implement lung cancer screening?
2. Pursue questions that address partner (*stakeholder) and community priorities

Rycroft-Malone and colleagues (2013) argue valuing implementation as a collaborative act that leads to:

- Knowledge and evidence that is more implementable
- Infrastructure that brings research evidence and implementation closer together
- Attention to local needs and increased relevance and impact of implementation activity
- Enhanced capacity and capability of implementation

2. Prioritizing partner and community member priorities

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➢ **Think about different perspectives at multiple levels:**
  - Deciders
  - Deliverers
  - Recipients
  - Families and communities

➢ **Methods:**
  - Informal meetings with multi-level partners and community members
    • Inner setting (e.g., healthcare setting, school)
    • Outer setting (e.g., policymakers, advocacy organizations)

➢ **Consensus discussions**
➢ **User- or human-centered design**
➢ **Participatory co-design**
3. Pursue questions with the end (i.e., proximal and distal outcomes) in mind

<table>
<thead>
<tr>
<th>Implementation Outcomes (Proctor and colleagues 2011)</th>
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<tbody>
<tr>
<td><strong>Acceptability</strong></td>
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<tr>
<td><strong>Adoption (uptake)</strong></td>
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<tr>
<td>** Appropriateness**</td>
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<tr>
<td><strong>Feasibility</strong></td>
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<td><strong>Fidelity</strong></td>
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<td><strong>Cost</strong></td>
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<td><strong>Penetration</strong></td>
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<td><strong>Sustainability</strong></td>
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3. Pursue questions with the end in mind

- Partner prioritization of implementation target
- Fidelity and adaptation during initial implementation
- Sustainability
4. Pursue questions that are grounded in a conceptual or theoretical framework

<table>
<thead>
<tr>
<th>Determinant Frameworks</th>
<th>Process Models</th>
<th>Evaluation Frameworks</th>
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<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>Understanding and/or explaining what influences implementation outcomes</td>
<td>Describing and/or guiding the process of translating research into practice</td>
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<td><strong>Process Models</strong></td>
<td>Evaluating implementation process and outcomes</td>
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<td>Example questions</td>
<td>- What are barriers and facilitators to implementation?</td>
<td>- What are the reasons for unplanned adaptations to an evidence-based intervention during implementation?</td>
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<td></td>
<td>• Consolidated Framework for Implementation Research (CFIR)</td>
<td>• What is the extent to which the intervention reaches the target group during implementation?</td>
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<tr>
<td>Framework</td>
<td>- Framework for Reporting Adapations and Modifications (FRAME)</td>
<td>• Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) Framework</td>
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**Interactive webtool for selecting implementation TMFs:** [https://dissemination-implementation.org/about-us/](https://dissemination-implementation.org/about-us/)
4. EPIS Process Model

**Exploration**
What evidence-based practices might address or solve clinical or health service problems
- Needs assessment to understand why people are not delivering the practice (e.g., barriers)

**Preparation**
Plan for integrating the evidence-based practice into the system
- What implementation strategies are desirable and feasible?

**Implementation**
Adopted practice is implemented
- Study strategies, mechanisms and implementation outcome

**Sustainment**
Evidence-based practice continues to be delivered with fidelity with continued health benefits
- Factors that predict and/or support sustainment

**EPIS Framework website:** [https://episframework.com](https://episframework.com)

5. Pursue questions that will advance knowledge of implementation

“Implementation science both emphasizes the primacy of context but also seeks — as a scientific endeavor — generalizable or transferable insights and inferences that apply or inform across those settings.”

Source: https://www.biomedcentral.com/collections/GCIR
Generalizing and Context in Implementation Research: Tensions and Opportunities

Edited by:
Whitney Irie, PhD, Boston College School of Social Work, USA
Aaloke Mody, MD, Washington University School of Medicine, USA
Radhika Sundararajan, MD, PhD, Weill Cornell Medicine Department of Emergency Medicine & Center for Global Health, USA

Submission Status: Open  |  Submission Deadline: 1 August 2024

Implementation Science and Implementation Science Communications are calling for submissions to our Collection on Generalizing and Context in Implementation Research: Tensions and Opportunities.

“How does implementation science reconcile its pursuit of scientific legitimacy and generalizing while maintaining its commitment to understanding what works, for whom, and under what circumstances — when these circumstances vary?”

About the collection: https://www.biomedcentral.com/collections/GCIR
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Examples of Implementation Research Questions

What are potential barriers and facilitators to the adoption of evidence-based medicine focused computerized clinical decision support systems linked to EHRs in specialty hospitals? (Determinants)

Is BASIS-T more effective than the ACC condition in promoting implementation outcomes (adoption, reach, fidelity, and sustainment)? (Process/Evaluation)

What is the impact of the de-implementation strategies on the rate of unnecessary postoperative antibiotic prophylaxis and on key clinical outcomes?
Learning Opportunities

Fundamentals Series
Monthly on the 2nd Tuesday
12:00-1:00 PM
Virtual

Works in Progress Series
Monthly on the 4th Tuesday
12:00-1:00 PM
In Person & Virtual

geiselmed.dartmouth.edu/dcis
linkedin.com/company/implementation-science
implementation.science@dartmouth.edu

Join Our Network
Hosted by:
Jeremiah Brown, PhD, DCIS Director
Kelly Aschbrenner, PhD, DCIS Co-Director
Sarah Lord, PhD, DCIS Co-Director

Monthly on the 2nd Tuesday*
(*Note: 4th Tuesday for April only)

March
From Concept to Impact: Exploring Implementation Models and Frameworks
Sara Malone, PhD
Washington University
Tuesday, March 12

April
Measuring Context, Process and Implementation
Katie Rendle, PhD
University of Pennsylvania
Tuesday, April 23*

May
Implementation Frameworks: PRISM & RE-AIM
Tina Studts, PhD
University of Colorado
Samantha Harden, PhD
Virginia Tech
Tuesday, May 14
National Resources


- Interactive webtool for selecting implementation TMFs: https://dissemination-implementation.org/about-us/

- EPIS Framework website: https://episframework.com

- RE-AIM website: https://re-aim.org


- UT Health Houston Seminar Series: https://www.uth.edu/implementation-science/our-work/training/annual-workshop
Discussion